

## VOLUME CONTENTS

Volume 18 Number 1/2

### PROCEEDINGS OF THE 6th INTERNATIONAL SPECIALIST SEMINAR ON THERMOLUMINESCENCE AND ELECTRON SPIN RESONANCE DATING

	iii	List of participants
M. Aitken	1	Preface
		<b>MODELS</b>
S. W. S. McKeever	5	Mechanisms of thermoluminescence production: some problems and a few answers?
R. Chen, Y. Kirsh and P. D. Townsend	13	Models for the sensitization of thermoluminescence in silica fibres
J. A. Kierstead and P. W. Levy	19	Validity of repeated initial rise thermoluminescence kinetic parameter determinations
		<b>THERMOLUMINESCENCE STUDIES</b>
M. R. Khanlary and P. D. Townsend	29	TL spectra of single crystal and crushed calcite
Y. Kirsh and R. Chen	37	Analysis of the blue phosphorescence of X-irradiated albite using a TL-like presentation
M. Andersson, H. M. Rendell and P. D. Townsend	41	Low temperature spectra of TL from sedimentary quartz and feldspars
M. A. Diaz, B. J. Luff, P. D. Townsend and K. R. Wirth	45	Temperature dependence of luminescence from zircon, calcite, Iceland spar and apatite
A. N. Silverman, P. W. Levy and J. A. Kierstead	53	Thermoluminescence kinetics of pyrite (FeS <sub>2</sub> )
G. Kitis, P. Bousbouras, C. Antypas and S. Charalambous	61	Anomalous fading in apatite
I. Milanovich-Reichhalter and N. Vana	67	Phototransferred thermoluminescence in quartz annealed at 1000°C
V. Mejdahl	71	Thermoluminescence dating of Late-Glacial sand sediments
N. Mercier	77	Flint palaeodose determination at the onset of saturation
M. Kanemaki, K. Ninagawa, I. Yamamoto, M. Nakagawa, T. Wada, Y. Yamashita and K. Endo	81	Red thermoluminescence of volcanic glass fractions from tephra
D. Miallier, J. Faïn, M. Montret, Th. Pilleyre, S. Sanzelle and S. Soumana	89	Properties of the red TL peak of quartz relevant to thermoluminescence dating
G. Kitis and S. Charalambous	95	Relative thermoluminescence response of alpha to beta radiation as a function of irradiation temperature
G. B. Robertson, J. R. Prescott and J. T. Hutton	101	Bleaching of the thermoluminescence of feldspars by sunlight
		<b>OPTICALLY STIMULATED LUMINESCENCE</b>
I. K. Bailiff and N. R. J. Poolton	111	Studies of charge transfer mechanisms in feldspars
D. Stoneham and S. Stokes	119	An investigation of the relationship between the 110°C TL peak and optically stimulated luminescence in sedimentary quartz

H. Jungner and D. J. Huntley

D. J. Huntley, D. I. Godfrey-Smith  
and E. H. Haskell

D. G. Questiaux

R. Grün

C. Falguères, Y. Yokoyama and D. Miallier

W. J. Rink and A. L. Odom

A. Wieser, Y. Göksu, D. F. Regulla  
and A. Waibel

S. Toyoda and M. Ikeya

M. Furusawa, M. Kasuya, S. Ikeda  
and M. Ikeya

H. Ishii, M. Ikeya, M. Kasuya  
and M. Furusawa

R. Debuyst, M. Bidiamambu and F. Dejehet

N. Porat and H. P. Schwarcz

A. D. Oduwale and K. D. Sales

R. G. Lyons and B. J. Brennan

P. Guibert and M. Schvoerer

R. B. Galloway and Y. Liritzis

B. J. Brennan, R. G. Lyons  
and S. W. Phillips

L. Bøtter-Jensen, C. Ditlefsen  
and V. Mejdahl

R. B. Galloway

B. W. Smith, G. C. W. S. Wheeler,  
E. J. Rhodes and N. A. Spooner

C. Yamanaka, M. Ikeya, K. Meguro  
and A. Nakanishi

*Erratum*

*Announcement*

*New Patents*

125 Emission spectra of some potassium feldspars under 633 nm stimulation

127 Light-induced emission spectra from some quartz and feldspars

133 Optical dating of loess: comparisons between different grain size fractions for infrared and green excitation wavelengths

#### ESR STUDIES

143 Potential and problems of ESR dating

155 Stability of some centres in quartz

163 Natural alpha recoil particle radiation and ionizing radiation sensitivities in quartz detected with EPR: implications for geochronometry

175 Unexpected superlinear dose dependence of the  $E'_1$  centre in fused silica

179 ESR dating of quartz and plagioclase from volcanic ashes using  $E'_1$ , Al and Ti centers

185 ESR imaging of minerals and its application to dating

189 ESR, TL and FT measurements of a natural apatite

193 An EPR study of  $\gamma$ - and  $\alpha$ -irradiated synthetic powdered calcite labelled with  $^{13}\text{C}$

203 Use of signal subtraction methods in ESR dating of burned flint

213 ESR signals in bones: interference from  $\text{Fe}^{3+}$  ions and a new method of dating

223 Alpha/gamma effectiveness ratios of calcite speleothems

#### DOSIMETRY

231 TL dating: low background gamma spectrometry as a tool for the determination of the annual dose

239 Scattering correction in beta dosimetry by beta particle counting

249 Attenuation of alpha particle track dose for spherical grains

#### TL AND ESR MEASUREMENT SYSTEMS

257 Combined OSL (infrared) and TL studies of feldspars

265 A versatile 40-sample system for TL and OSL investigations

273 Luminescence dating of zircon using an imaging photon detector

279 A portable ESR spectrometer using Nd-Fe-B permanent magnets

283

285 Tenth Solid State Dosimetry Conference

I

## Volume 18 Number 3

- |   |     |   |
|---|-----|---|
| M. S. Ramachandra Rao and D. R. Rao                                       | 287 | Optically stimulated luminescence of mixed alkaline earth sulphide phosphors  |
| D. V. Fragoulis and M. L. Readhead  | 291 | Feldspar inclusions and the anomalous fading and enhancement of thermoluminescence in quartz grains   |
| G. Dajkó  | 297 | Etching characteristics of a CR-39 track detector at room temperature in different etching solutions  |
| R. A. Donelick and D. S. Miller   | 301 | Enhanced tint fission track densities in low spontaneous track density apatites using $^{252}\text{Cf}$ -derived fission fragment tracks: a model and experimental observations |
| K. Freyer, H. C. Treutler, K. Dietze, I. Hunyadi, I. Csige and G. Somogyi | 309 | Vacuum treatment of CR-39 for the reduction of background in neutron induced autoradiography of boron   |
| A. A. Qureshi, K. A. Butt and H. A. Khan                                  | 315 | Emplacement time of Salai Patai carbonatite, Malakand, Pakistan, from fission track dating of zircon and apatite  |
| R. Bonetti, L. Capra, C. Chiesa, A. Guglielmetti and C. Migliorino        | 321 | Energy response of LR-115 cellulose nitrate to alpha-particle beams   |
| R. Bonetti, C. Chiesa, A. Guglielmetti and C. Migliorino                  | 325 | Calibration of BP-1 phosphate glass with heavy-ion beams  |
| M. Kasuya, S. Brumby and J. Chappell                                      | 329 | ESR signals from natural gypsum single crystals: implications for ESR dating  |
| Anupam, S. Kumar and N. Lal   | 335 | Etching and annealing characteristics of different CR-39 track detectors: a comparative study   |
| <i>Short Communications</i>   |     |   |
| A. K. F. Haque, G. S. Islam, M. R. Uddin and M. A. Islam                  | 341 | Indoor and underground radon activity in the northern part of Bangladesh: a preliminary study   |
| U. R. K. Rao, J. M. Mahajan and B. C. Bhatt                               | 345 | Thermoluminescence of $\text{Dy}^{3+}$ and $\text{Gd}^{3+}$ in different crystallographic modifications of sodium sulphate  |
| R. Dersch, C.-D. Zhao, E. U. Khan, P. Vater and R. Brandt                 | 349 | Dependence of track parameters on the azimuthal orientation of tracks in various planes of different olivine crystals   |
| M. Gelev, F. Spurný and I. Votočková                                      | 355 | Measurement of beta radiation using graphite-mixed thermoluminescent $\text{CaSO}_4:\text{Dy}$  |
| <i>Conference Reports</i>   |     |   |
| M. Sohrabi  | 357 | International Conference on High Levels of Natural Radiation, held at Ramsar, Islamic Republic of Iran, 3-7 November 1990   |
| Shi-Lun Guo   | 363 | The Fourth National Conference on Solid State Nuclear Track Detectors in China, held at Shanghai, China, 7-10 November 1990   |
| <i>New Patents</i>  |     |   |
|   | i   |   |

## Volume 18 Number 4

- |   |     |   |
|---|-----|---|
| S. A. Karamyan                              | 365 | Track recrystallization in semiconductors observed for xenon irradiations at $0.9 \text{ MeV amu}^{-1}$ |
| G. A. T. Duller                             | 371 | Equivalent dose determination using single aliquots   |
| G. A. T. Duller and A. G. Wintle            | 379 | On infrared stimulated luminescence at elevated temperatures  |
| S. L. Sharma, T. Pal, V. V. Rao and W. Enge | 385 | Effect of gamma irradiation on bulk etch rate of CR-39  |
| L. M. Soroko                                | 391 | Meso-optical Fourier transform microscope: principles and main features                                 |
| W. Birkholz, C. Winkler and E.-J. Langrock  | 403 | Uranium measurements with SSNTDs for environmental protection   |



**Shicheng Wang and P. B. Price**

407 The etching characteristics of phosphate glass track detectors

**J. Charvát and F. Spurný**

411 On the SSTD calibration simulation by sparsely ionizing radiation

*Short Communications*

**K. Turek, J. Bednář and G. Dajkó**

415 Variation of temperature with time during electrochemical etching

**R. C. Singh and H. S. Virk**

419 Role of polarization and tensile strength in the process of electrochemical etching (ECE)

*Letter to the Editor*

**G. Bigazzi**

423 Comment on "Results of interlaboratory comparison of fission track ages for the 1988 Fission Track Workshop" by Miller *et al.*, 1990

*Conference Reports*

**S. Stokes**

425 6th International Specialist Seminar on TL and ESR Dating, held at Clermont-Ferrand, France, August 1990

**R. Siddall and C. L. E. Lewis**

427 Fission Track Research at the Seventh International Conference on Geochronology, Cosmochronology, and Isotope Geology, held at the Australian National University, Canberra, 24–29 September 1990

**S. Kandaiya**

431 Report on the Regional Workshop on Solid State Nuclear Track Detectors (SSNTDs) and Applications, held at Hat-Yai, Thailand, 15–16 November 1990

*Announcements*

433 International Workshop and Conference on Quark Matter and the Heavy Ion Collisions

10th Solid State Dosimetry Conference

16th International Conference on Nuclear Tracks in Solids

*Volume Contents and Author Index,*  
*Volume 18, 1991*

I

